

100-342721
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April 22, 1960

Joe:

Subject: Contract PR-8200

Attached please find a description of several courses being offered at M.I.T. which we feel would be of direct value to the individuals named in the performance of the work called for under the subject contract.

We agree that the value of these courses is also applicable to the areas of interest of this Corporation. We, therefore, propose that the cost of the courses and the travel and subsistence expenses of the people involved in the courses be borne by this Corporation. We estimate this amount to be approximately \$2100. We propose that the direct labor charges be made directly to the subject contract and estimate these in the amount of approximately [redacted]

STATINTL

Each of the courses described in the attachment deals specifically with an important problem on the [redacted] Project, and the people taking the courses are the individuals directly associated with those problems. We, therefore, feel that the above proposed distribution and charges are reasonable and wish to request approval to proceed on this basis.

STATINTL

[redacted]

Charlie, [redacted]

STATINTL

CMH: pma

Attachment

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[redacted]

STATINTL

COURSE NAME

COURSE DESCRIPTION

CANDIDATE

APPLICATIONS OF
PROBABILITY THEORY
TO OPERATIONS
RESEARCH

This ten-day special Summer Program is a course on the theory of probability and random variables with emphasis upon those mathematical models which have important applications in the field of operations research. Its purpose is to develop mathematical facility in the use of these techniques. Three or four days of the program will be concerned with the general concepts of probability and distribution theory with emphasis on those mathematical models which are important in applications. The remainder of the program will be devoted to the further application of probability theory to operations research such as Markoff processes, the use of Kolmogorov equations, queueing theory, dynamic programming in the presence of random variables stochastic processes, and simulation. Some illustrations will be used from the fields of production, distribution and marketing, inventory control, reliability and maintenance, and servicing operations of various sorts. The program will consist of morning and afternoon lectures by the staff.

STATINTL

STRENGTH OF
PLASTICS AND
GLASS

In many instances the strength and fracture phenomena associated with polymeric materials or plastics show considerable similarity to those associated with inorganic glasses. This appears to be true from a fundamental as well as an engineering point of view, and frequently forms of behavior are common to both classes of materials. This Special Summer Program will examine such similarities for the significance which may be inherent, as well as to study differences which may be based upon chemical or physical dissimilarities. Specific topics to be discussed include fracture mechanisms; effects of time, temperature, and composition; and effects of environment and physical state.

STATINTL

MODERN DEVELOP-
MENTS IN HEAT
TRANSFER

During the past decade advances in fields such as nuclear power, space flight, high-performance rotating machinery, and electronic equipment have focused attention on a wide variety of heat transfer phenomena. Recent developments in some of these heat transfer processes will form the current content of this two-week Special Summer Program. Emphasis will be on understanding the underlying principles and their application to engineering problems. The program, intended for engineers, research workers, and teachers, in the field of heat transfer, will assume a one-semester undergraduate course in heat transfer or its equivalent as experience.

STATINTL

(MODERN DEVELOP-
MENTS IN HEAT
TRANSFER, contd.)

The program will be built around a series of lectures on determining the rates of heat exchange between various surfaces and between surfaces and gas in enclosures of arbitrary shape; condensation of vapors on vertical surfaces and horizontal tubes; boiling liquids in pool boiling and forced convection boiling; two-phase pressure drop; heat transfer associated with laminar and turbulent boundary layers on surfaces; mass transfer within boundary layers; prediction of the contact resistance to heat transfer at metal-metal interfaces; the radiation properties of surfaces; thermal stresses; failure due to thermal strain; liquid metal heat transfer; and ablation.

FUNDAMENTALS OF
STRAIN GAGE
TECHNIQUES

The recent spectacular advances in space vehicles and atomic power production have focused attention on the urgent need for more information about the techniques of experimental stress analysis. To assist in meeting the critical need for improved technology, the Department of Mechanical Engineering will offer this Special Summer Program dealing with wire and foil resistance, strain gages and their associated instrumentation.

APPLICATIONS OF
STRAIN GAGE
TECHNIQUES

The Department of Mechanical Engineering will also offer a second one-week program to supplement the one on Fundamentals of Strain Gage Techniques, consisting entirely of laboratory exercises which have been designed to provide practice in the handling of equipment and to illustrate the theory presented during the lecture course. Those attending the laboratory will be assigned to small groups so that each man will have an opportunity to handle the equipment.

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